

## CONTENTS

Preface . . . . .	v
The role of acoustic properties in designs of acoustic and optical fibers . . . . . C. K. Jen (Boucherville, Quebec, Canada)	1
Scanning acoustic microprobe analysis for testing solid state materials . . . . . H. Vettters, E. Matthaei, A. Schulz and P. Mayr (Bremen, F.R.G.)	9
Observation of stable crack growth in $Al_2O_3$ ceramics using a scanning acoustic microscope . . . . . A. Quinten and W. Arnold (Saarbrücken, F.R.G.)	15
Acoustic lenses employing PZT thin film transducers . . . . . C. K. Jen, C. Neron (Boucherville, Quebec, Canada), G. Yi, M. Sayer (Kingston, Ontario, Canada), M. Castonguay and J. D. N. Cheeke (Sherbrooke, Quebec, Canada)	21
Mechanical characterization by acoustic techniques of SiC chemical-vapour-deposited thin films . . . . . J. M. Saurel, K. Alami, C. Amaudric du Chauffaut (Montpellier, France), O. Dugne and A. Guette (Pessac, France)	27
Study of attenuation and dispersion of optically excited surface acoustic waves employing small poly(vinylidene difluoride) foil transducers . . . . . A. Neubrand and P. Hess (Heidelberg, F.R.G.)	33
Efficient generation of acoustic pressure waves by short laser pulses . . . . . S. Fassbender, B. Hoffmann and W. Arnold (Saarbrücken, F.R.G.)	37
Phase-preserving imaging of high frequency surface acoustic wave fields . . . . . G. Sölkner, A. Ginter and H.-P. Graßl (Munich, F.R.G.)	43
Scanning electron acoustic microscopy of SiC particles in metal matrix composites . . . . . J. H. Cantrell and M. Qian (Cambridge, U.K.)	47
Use of scanning electron acoustic microscopy for the analysis of III-V compound devices . . . . . J. F. Bresse (Bagneux, France)	53
Signal generation in scanning electron acoustic microscopy . . . . . M. Qian and J. H. Cantrell (Cambridge, U.K.)	57
Waves and vibrations in periodic piezoelectric composite materials . . . . . B. A. Auld (Stanford, CA, U.S.A.)	65
Propagation of elastic waves in one-dimensional composites . . . . . A. Alippi (Rome, Italy)	71
Precision ultrasonic velocity measurements for the study of the low temperature acoustic properties in defective materials . . . . . A. Vanelstraete and C. Laermans (Leuven, Belgium)	77
Bulk and surface waves for wood anisotropy characterization. . . . . V. Bucur (Seichamps, France)	83
Photoacoustic characterization of liquid crystal phase transitions . . . . . C. Glorieux, E. Schoubs and J. Thoen (Leuven, Belgium)	87
Analysis of plasma surface modifications by thermal depth profiling and correlation with plasma-surface interactions. . . . . B. K. Bein, M. Wojczak and J. Pelzl (Bochum, F.R.G.)	93
Thermally induced concentration wave imaging . . . . . P. Korpiun, R. Osiander, B. Helm and R. Tilgner (Garching, F.R.G.)	101
Application of the photoacoustic technique between room temperature and 1000 K for thermophysical measurements of porous graphite samples . . . . . B. K. Bein, H. W. Schmidt, D. Krüger, J. Gibkes and J. Pelzl (Bochum, F.R.G.)	107

Pyroelectric thermal wave detector and its application. . . . .	113
L. Kocsányi, P. Richter, P. Deak (Budapest, Hungary) and H. K. Lichtenthaler (Karlsruhe, F.R.G.)	
Interferometric measurement of thermal expansion . . . . .	117
V. Kurzmann, J. Stöhr, M. Tochtrop and R. Kassing (Kassel, F.R.G.)	
Heterodyne common path interferometers for surface profilometry and characterization. . . . .	121
M. G. Somekh, M. J. Offside, R. K. Appel and C. W. See (London, U.K.).	
Quantitative analyses of power loss mechanisms in semiconductor devices by thermal wave calorimetry .	127
B. Büchner (Rehovot, Israel), M. Wolf (Philadelphia, PA, U.S.A.) and D. Cahen (Rehovot, Israel)	
Application of ultrasonic microscopy to non-destructive evaluation. . . . .	133
S. Joseph (Lille, France)	

**CONTENTS**

The lattice dynamical mean field criterion for low energy dislocation structure formation in shape memory alloys . . . . .	137
S. Mendelson (New York, NY, U.S.A.)	
Strain hardening and substructural evolution in Ni-Co solid solutions at large strains . . . . .	153
D. A. Hughes (Livermore, CA, U.S.A.) and W. D. Nix (Stanford, CA, U.S.A.)	
Influence of some parameters on the strength and fracture toughness of reaction-bonded silicon nitride composites. . . . .	173
A. K. Mukhopadhyay and D. Chakraborty (Calcutta, India)	
A simple development of the shear lag theory appropriate for composites with a relatively small modulus mismatch. . . . .	183
T. W. Clyne (Cambridge, U.K.)	
Process control of superplastic forming under superimposed hydrostatic pressure . . . . .	193
H. S. Yang, H. K. Ahmed and W. T. Roberts (Birmingham, U.K.)	
Approximate calculation of fracture ductility and fracture toughness of ductile metals . . . . .	205
W. H. Tai (Beijing, China)	
The relationship between the strain-hardening exponent $n$ and the microstructure of metals . . . . .	211
F. Zhang, M. Huang and D. Shi (Xi'an, China)	
Lithium effects in high temperature deformation of an Al-Li alloy: application to superplasticity . . . . .	215
J. J. Blandin (Saint Martin d'Hères, France)	
The Poisson effect in cork. . . . .	227
M. A. Fortes (Lisbon, Portugal) and M. T. Nogueira (Monte da Caparica, Portugal)	
Creep substructure formation in sodium chloride single crystals in the power law and exponential creep regimes. . . . .	233
S. V. Raj (Cleveland, OH, U.S.A.) and G. M. Pharr (Houston, TX, U.S.A.)	
Positron annihilation study of radiation damage in neutron-irradiated zirconium and its alloys . . . . .	243
M. Šob (Brno, Czechoslovakia), J. Kočík (Prague, Czechoslovakia), J. Pavlovsky and M. Pahutová (Brno, Czechoslovakia)	
Application of scanning tunneling microscopy for crystallization studies of metallic glasses . . . . .	251
A. Zaluska, L. Zaluski and A. Witek (Warsaw, Poland)	
Microstructure and crystallography of a directionally solidified Ni-NiMo eutectic alloy . . . . .	257
D. Schwam and S. F. Dirnfeld (Haifa, Israel)	
ANNOUNCEMENT . . . . .	265
CONFERENCE CALENDAR . . . . .	267
ERRATUM . . . . .	273
LETTERS	
Temperature rise at a dislocation pile-up breakthrough . . . . .	L1
R. W. Armstrong (College Park, MD, U.S.A.) and W. L. Elban (Baltimore, MD, U.S.A.)	
Enhanced tensile ductility in Fe-Mn-Ni base maraging alloys . . . . .	L5
S. N. Basu (Howrah, India) and A. N. Kumar (New Delhi, India)	
Interaction between creep and fatigue in a Cr-Mo-W-V steel. . . . .	L9
X. Wang, H. Zhou, Q. H. Ni, Q. P. Kong (Hefei, China) and N. B. Zhou (Nanjing, China)	
AUTHOR INDEX . . . . .	275
SUBJECT INDEX . . . . .	277

